#### NEW SPECIES AND RECORDS OF *APIROCALUS* PASCOE (COLEOPTERA: CURCULIONIDAE: ENTIMINAE: CELEUTHETINI) FROM NEW GUINEA

## **R.T. THOMPSON**

#### Department of Entomology, The Natural History Museum, Cronwell Road, London SW7 5BD, England

### Abstract

Eight new species of the New Guinean weevil genus *Apirocalus* Pascoe are described: *A. carinirostris, A. fordi, A. grossus, A. perturbans, A. riedeli, A. scaber, A. specillifer* and *A. verrucosus,* together with three new subspecies: *A. cornutus bosavii, A. sedlaceki laminifer* and *A. avus tarii.* One previously described species is reduced to subspecific status as *A. cornutus paradoxus* Thompson, stat. n. The known ranges of several other species are extended.

### Introduction

This paper is a supplement to one published nearly 30 years ago (Thompson 1977). In that work, 34 species and 9 subspecies of *Apirocalus* Pascoe were recognized. Here, a further 8 new species and 3 new subspecies are added and one previously described species is reduced to subspecific status, so the totals are now 41 species and 13 subspecies. Most of these taxa occur in Papua New Guinea; only three (*A. terrestris dissidens* Thompson, *A. cornutus virescens* Thompson and *A. ebrius ebrius* Faust) are known from West Papua (= Irian Jaya), despite intensive collecting there by Alexander Riedel. The system of subgenera and species groups previously established (Thompson 1977) remains unchanged.

Adult *Apirocalus* attack a very wide range of plants, including field crops and trees (Thompson 1977). Their habit of attacking the tender shoots of woody plants makes them especially harmful; thus Browne (1968) observed: 'This weevil [*A. cornutus* Pascoe] is reported as a minor pest of *Eucalyptus deglupta* [Myrtaceae] in the drier parts of Papua. The adult beetle feeds on the foliage of trees of all ages, frequently injuring the growing tips, causing loss of increment and the deformation of stems of young trees.'

The taxonomic problems associated with flightless weevils which inhabit mountainous terrain are here exacerbated by varying degrees of sexual dimorphism and by clinal variation, which may be both horizontal and vertical. The latter may affect different species in the same way, *e.g.* reduction in scale size with increasing altitude. Every degree of difference between populations occurs so the ranking of segregates is more than usually subjective and it is difficult to treat different groups consistently.

Techniques remain as in Thompson (1977) except that it is not always necessary to remove the entire abdomen when preparing the genitalia, provided the specimen is thoroughly softened in warm water (with detergent to aid penetration). It is very important to preserve the very elongate internal sac of the male so that its denticles and flagellum may be observed. The latter is now measured using a map distance measurer; this is calibrated by running it along a scale-line drawn using a stage micrometer and the same camera lucida set-up as that used for drawing the flagellum. The tip of the flagellum is often exceedingly fine and hard to detect; in such cases it may be necessary to make an incision in the sac and tease it out.

Most of the material for this study came from two sources, the Bernice P. Bishop Museum, Honolulu (BPBM) and the collection of Alexander Riedel (AR). Riedel's collection is at present in the Zoologisches Staatssammlung, Munich (ZS), where holotypes described from it are deposited. A few records resulting from my visit to the Paris Museum (MNHN) in 1978 are included. Others are in The Natural History Museum, London (BMNH).

### **Systematics**

## Genus Apirocalus Pascoe

## Subgenus Molobrium Thompson

Small species (< 7.5 mm); elytra with a pair of erect tubercles (at least in males) but no blade-like processes or subhorizontal angulations.

## gracilis group

Mesepisterna and arms of mesosternum smooth and bare.

## Apirocalus (Molobrium) fordi sp. n.

(Figs 1-4, 33-35)

*Types. Holotype* O<sup>\*</sup>, PAPUA NEW GUINEA: Morobe District, Salawaket [Saruwaged] Range, Sepalakambang [Seperagambang], 1920 m, 11-14.ix.1956, E.J. Ford, Jr (in BPBM). *Paratypes*: 6 O<sup>\*</sup>O<sup>\*</sup>, 4 99, same data as holotype (7 BPBM, 3 BMNH); 1 O<sup>\*</sup>, ditto, except 12.ix.1956; 1 O<sup>\*</sup>, ditto, except 15.ix.1956 (both BPBM); 4 O<sup>\*</sup>O<sup>\*</sup>, 4 99, Baindoang [Baindoung], 1800 m, 15.ix.1956, E.J. Ford, Jr (6 BPBM, 2 BMNH); 1 O<sup>\*</sup>, 1 9, Gewak,1530 m, 6.ix.1956, E.J. Ford, Jr; 1 O<sup>\*</sup>, 1 9, ditto, except 7.ix.1956 (all BPBM); 1 9, Tuwep [Tewep], 1350 m, 8.ix.1956, E.J. Ford, Jr (BPBM).

Description. Length 6.0-6.7 mm. Head and prothorax black, hind body and legs black or blackish red, antennae dark red. Scales uniform brown or coppery but sometimes variegated with pale grey-green or pearly (especially when clean) and sometimes fiery red on heads of femora; setae mostly white on legs and elytral tubercles. Head as in *A. gracilis* Thompson except eyes smaller and more strongly convex; nasal plate ill-defined, convex; interantennal area coarsely and irregularly punctate; median rostral carina very variable: sometimes well-defined, broad, flattened (with or without median groove), sometimes reduced or divided in two longitudinally and merging with surrounding rugosity; antennal scape slightly stouter than in *A. gracilis*. Prothorax as long as broad, barrel-shaped, widest slightly (female) or distinctly (male) in front of middle, middle of sides strongly rounded, tapering thence to extremities; setae mostly small, brown, and inconspicuous. Elytra as in *A. gracilis* except TSI (Tubercle Separation Index – see Thompson 1977, fig. 2) smaller: 44-55 (o<sup>r</sup>), 17-27 (9). Legs as in *A. gracilis* 



**Figs 1-22.** Apirocalus spp., genitalia etc. (1-3) *A. (Molobrium) fordi* median lobe of aedeagus in dorsal, postero-lateral (apex only) and right lateral view; (4) ditto, spermatheca (gland missing); (5-7) *A. (M.) scaber* median lobe of aedeagus; (8, 9) *A. (A.) verrucosus* median lobe of aedeagus; (10) ditto, spermatheca; (11-13) *A. (A.) riedeli* median lobe of aedeagus; (14) ditto, spermatheca; (15-17) ditto, apex of elytra in postero-dorsal view (15 male, 16, 17 female); (18-20) *A. (A.) perturbans* median lobe of aedeagus; (21, 22) spermathecae. Scale-lines = 0.5 mm.

except fore tibiae strongly incurved towards apex and inner edge of all tibiae without any evident teeth. Venter rugose, coarsely punctate, strongly setose; scales dense only on ventrite 2, especially towards sides. Sexual dimorphism pronounced: male with large,  $\pm$  conical tubercle at top of elytral declivity, centred on interstria 4, with or without much smaller accessory tubercles in interstriae 5 and 6 (*cf.* Thompson 1977, fig. 31); female with much smaller  $\pm$  conical tubercle in middle of elytral declivity centred on interstria 3, with or without indications of swellings at top of declivity in interstriae 3, 5 and 6; female with disc of pronotum covered with dense shiny granules (absent in male) and with ventrite 2 tumescent; male with swelling in centre of metasternum and narrow longitudinal median sulcus on ventrite 1 (as in *A. stibicki* Thompson).

*Genitalia*. Seven males, 5 females dissected. Median lobe of aedeagus (Figs 1-3) x 2.47-2.94 as long as broad (mean (6) = 2.74) and x 0.69-0.87 as long as pronotum (mean (6) = 0.78), sides weakly sinuous, apex tapering, tip blunt, upper surface with pair of strong smooth cariniform elevations in basal half; apodemes (struts) x 1.64-1.77 as long as median lobe (mean (5) = 1.71); manubrium x 0.69-0.74 as long as median lobe (mean (5) = 0.73); flagellum x 0.6 as long. Spermathecae of two specimens closely resemble those of *A. gracilis* (Thompson 1977, fig. 88).

*Comments.* Although the median lobe of the aedeagus is distinctive, I have been unable to find any strong external character that will distinguish the male of this species from that of *A. stibicki*; it is probably smaller (on average) than the latter, the eyes are usually smaller and more strongly convex and the elytral setae are more prominent. In particular, the setae on the disc of the elytra are semi-erect (not recumbent), although still very inconspicuous. The small, mid-declivital tubercles of the female are distinctive (Fig. 34). In one of the Gewak females (Fig. 35) these tubercles are obsolete; this is the first recorded example of an *Apirocalus* without any elytral elevations.

*Range*. Northern Morobe District (Saruwaged Range). Altitude: 1350-1920 m. The range of this species lies between those of *A. gracilis* and *A. stibicki*. It shares this range with *A. granulicollis* Thompson and *A. ebrius wagneri* Thompson; all three were taken together by Ford.

### Apirocalus (Molobrium) scaber sp. n.

(Figs 5-7, 36)

*Type. Holotype* O', PAPUA NEW GUINEA: Morobe District, Huon Peninsula, Pindiu, 20.iv.1963, J. Sedlacek (in BPBM).

*Description.* Male. Length 6.4 mm. Black, except antennal funicle and tarsi blackish red. Scales mostly brown or coppery, concentrated at sides of prothorax and on elytral elevations, elsewhere dull and hyaline, with bare areas below elytral humeri and on sides of prothorax posteriorly; setae mostly



**Figs 23-32.** Apirocalus (A.) spp., genitalia. (23, 24) A. carinirostris median lobe of aedeagus; (25) ditto, spermatheca; (26) A. avus tarii apex of aedeagus in right lateral view; (27) A. avus intermedius, ditto; (28, 29) A. grossus median lobe of aedeagus; (30-32) A. specillifer median lobe of aedeagus (holotype; the asymmetry of the apex is not apparent in the paratype). Scale-lines = 0.5 mm.

pale, conspicuous on femora. Head as in *A. fordi*; median rostral carina very narrow. Prothorax x 1.1 as long as broad, widest about middle, sides evenly rounded, upper surface and sides very coarsely punctate, interspaces very narrow, forming an irregular reticulum. Elytra obovate, sides straight in posterior part of basal half, tapering strongly and evenly to base, less strongly but increasingly to apex; disc flattened, surface with smooth irregular transverse rugae; strial punctures very deep (deeper than those on prothorax);

large stout tubercle at top of declivity, centred on interstriae 2-4, much smaller accessory tubercle in interstria 5 and a distinct cariniform elevation anterior to this in interstria 6, also a vague swelling on declivity, centred on interstriae 5 and 6, between main tubercle and apex and another behind humeri, centred on interstriae 6 and 7, about level with metasternum; setae on tubercles small (some possibly missing); TSI 50. Mesepisterna with 5-7 scattered punctures; metasternum with disc flat, very coarsely and irregularly punctate. Legs as in *A. fordi*. Venter very coarsely punctate (about as pronotum); ventrite 1 with broad deep median sulcus, depth enhanced by ill-defined flanking rugose carinae.

*Genitalia*. Median lobe of aedeagus (Figs 5-7) short and stout, only twice as long as broad and x 0.6 as long as pronotum, sides broadly constricted in apical third, tip bluntly rounded, middle of base with short but strongly raised median carina; internal sac without any large denticles; (flagellum missing).

*Comments.* Easily distinguished from its relatives by its coarse puncturation and the uneven surface of the elytra.

Range. Northern Morobe District (Pindiu). Altitude: unknown (< 1450 m).

## Apirocalus (Molobrium) stibicki Thompson

Material examined. PAPUA NEW GUINEA: 1 of, Morobe District, Lae, Melambi River, Mirilunga Village, 4500 ft [1350 m], 29.xii.1956, J.H. Ardley (BMNH).

*Comments.* This specimen resembles the holotype of *A. stibicki* except that it lacks entirely the accesory tubercles in elytral interstriae 5 and 6 (Thompson 1977, fig. 31). Having observed the wide range of variation in these tubercles in *A. fordi*, I am convinced that this specimen is conspecific with *A. stibicki*. The locality is clearly very near that of the holotype but at a lower altitude.

The four species which comprise the *gracilis* group occur in a line along the mountains from the Finisterre Range in the west to the Huon Peninsula in the east. Interestingly, they show some clinal variation in body form and in the development of the longitudinal sulcus on ventrite 1 of the male. This sulcus is absent in *A. gracilis*, narrow and shallow in *A. fordi* and *A. stibicki* and broad and deep in *A. scaber*.

### io group

Mesepisterna and arms of mesosternum squamose.

## Apirocalus (Molobrium) terrestris terrestris Thompson

Material examined. PAPUA NEW GUINEA: 1 of, Southern Highlands, Tari-Koroba, Hedemari, 1700-1900 m, 6-9.v.1998, A. Riedel (AR).

Additional published records. PAPUA NEW GUINEA: Eastern Highlands Province, Kainantu, 1550m, v.1976, on cabbage; Western Highlands Province, Tambul, xii.1975, on lettuce (Greve and Ismay 1983).

*Comments.* The specimen examined extends the range of *A. t. terrestris* slightly to the west and is the second record for the Southern Highlands.



Figs 33-39. Apirocalus spp. (33-35) A. (Molobrium) fordi (33 male, with dorsal elytral tubercles, 34 female, with declivital tubercles; 35 female without any tubercles); (36) A. (M.) scaber, holotype male; (37, 38) A. (A.) fallax, male, female; (39) A. (A.) verrucosus, female.

#### Apirocalus (Molobrium) terrestris dissidens Thompson

*Material examined*. PAPUA NEW GUINEA: 1 9, Sandaun Province, Telefomin, trail to Eliptamin, 1700-1900 m, 16-17.v.1998, A. Riedel (AR); 1 9, 'NE', Tifalmin, 1350 m, 19.viii.1963, R. Straatman (BPBM). INDONESIA (WEST PAPUA): 2 G'O', Swart Valley, W side, 1400-2000 m, 10.xi.1958, J.L. Gressitt (BPBM).

*Comments.* I have been unable to find Tifalmin; it is cited in an unpublished Bishop Museum list (without coordinates) but is not in Anon (1970). The Swart Valley record extends the range of *A. t. dissidens* some 300 km WNW along the central mountains of New Guinea. The upland form of *A. ebrius* also occurs in Swart Valley (Thompson 1977).

## Subgenus Apirocalus Pascoe

Elytra with a pair of subhorizonal blade-like processes or peripheral angulations; sometimes with oblique tuberculiform processes but these project beyond elytral outline in dorsal view.

#### fallax group

Variable species, mostly small and rough, with short angulate subhorizontal elytral processes in both sexes and having the apex of the aedeagus acuminate. Some males have a deep, sharply defined, crater-like fovea on ventrite 5 and sharp carinae on the upper surface of the median lobe of the aedeagus, neither of which features is found outside the group.

## Apirocalus (A.) fallax Thompson (Figs 37, 38)

*Material examined.* PAPUA NEW GUINEA: 2 ex., Morobe District, *c*.10 km S of Garaina, Saureri, 1400-1700 m, 22.iii.1998, A. Riedel; 2 ex., ditto, except 1600-1700 m, 23-24.iii.1998 and 'sifted'; 1 ex., ditto, except 1550-1700 m, 27.iii.1998 (all AR); 1 ex., Wau, Biaru, 1225 m, 8.x.1978, J.L. Gressitt (BPBM).

## Apirocalus (A.) verrucosus sp. n.

(Figs 8-10, 39)

*Types. Holotype* O, PAPUA NEW GUINEA: Morobe District, Aseki, Alewa near Polu, 1750 m, 14.iv.1998, A. Riedel, 'sifted' (in ZS). *Paratypes*: 1 9, same data as holotype (BMNH); 1 9, Aseki, Hokanaiwa, 1600-1900 m, 4.ii.1998, A. Riedel; 1 9, Aseki, Oiwa, 1600-1700 m, 11-12.iii.1998, A. Riedel (both AR).

*Description.* Length 5.6-6.6 mm. Head and body black, antennae and legs dark or blackish red. Scales brown, with coppery reflection (when clean); setae mostly brown, those on elytra prominent. Head with strong circumocular rugae; eyes large, moderately convex (about as in *A. sedlaceki*); rostrum weakly and evenly widening from base to pterygia, median carina distinct but fine; antennae as in *A. fallax.* Prothorax about as long as broad, widest about middle, sides rather strongly rounded, base about one fifth wider than apex; disc of pronotum with irregular longitudinal elevations on either side of mid-line (weaker in male), causing disc to appear flattened, surface

also with irregularly arranged bead-like granules (larger in female). Elytra subquadrate, flattened above, with strong strial punctures and numerous elevations, some granuliform, some cariniform, especially towards sides where they project beyond elytral outline in dorsal view; elytral processes very small, broadly rounded or truncate, not (female) or scarcely (male) larger than their basal swellings which appear as discrete granules; EPI 112 ( $O^*$ ), 110-113 (P) (Thompson 1977, fig. 3). Legs as in *A. fallax*. Mesepisterna with 4-6 large (sometimes confluent) punctures and numerous scales; arms of mesosternum with one or two indistinct punctures and 1-3 scales. Venter and metasternum strongly punctate and rugose, with scattered scales and semierect setae; ventrite 5 with indistinct fovea in male. Sexual dimorphism very slight (see above).

*Genitalia*. One male and 1 female dissected. Median lobe of aedeagus (Figs 8, 9) x 3.13 as long as broad and x 0.56 as long as pronotum, weakly curved in profile, apex acuminate, tip broadly rounded; apodemes x 2.36 as long as median lobe; flagellum x 1.6 as long as median lobe and x 0.65 as long as pronotum. Spermatheca (Fig. 10) distinctly plumper than those of *A. fallax* (Thompson 1977, figs 123-125); duct x 0.61 as long as flagellum of male.

*Comments.* The right elytron of the holotype is distinctly shorter than the left owing to failure of the apical part to expand fully. The female resembles some females of *A. fallax* but in that species the punctures on the mesepisternum are smaller and more numerous. The various pronotal and elytral elevations make this the roughest species yet described, hence the name ('warty'). It is the only member of the nominate subgenus in which the spread of the elytral processes of the male is distinctly less than the greatest width of the elytra proper. Its distribution extends the range of the *fallax* group some 60 km to the west.

Range. Morobe District (Aseki). Altitude: c. 1700 m.

# Apirocalus (A.) riedeli sp. n.

(Figs 11-17, 40-42)

*Types. Holotype* o<sup>\*</sup>, PAPUA NEW GUINEA: Morobe District, range between Aseki and Menyamya [7°18'S, 146°08'E], 2000-2200 m, 12.iv.1998, A. Riedel (in ZS). *Paratypes*: 12 o<sup>\*</sup>o<sup>\*</sup>, 7 99, same data as holotype (14 AR, 5 BMNH); 1 o<sup>\*</sup>, 6 99, Aseki, Oiwa, 1600-1700 m, 11-12.iii.1998, A. Riedel (6 AR, 1 BMNH); 1 o<sup>\*</sup>, 1 9, ditto, except 1700-1800 m and 10-11.iv.1998; 1 o<sup>\*</sup>, ditto, except Langama Road and 21.ii.1998; 1 o<sup>\*</sup>, Aiewa near Poiu (S of Aseki), 1500-1700 m, 14.iv.1998 (all AR); 1 9, Watut-Aseki Divide, 1900 m, 14.iv.1974, Reni Sakomdaro (BPBM).

*Description.* Length 7.2-8.3 mm. Head and body black, antennae and legs dark or blackish red (coxae and tarsi black). Scales either bright rust-brown or mostly or entirely green, dense on body, smaller and separate on legs, vividly metallic towards apex of elytral processes but with extensive bare areas below sides of prothorax and elytra; setae mostly brown on body, pale on legs. Head as in *A. fallax* except antennae more slender throughout,

funicle segments 1 and 2 subequal and x 2.8-3.2 as long as broad, segments 4-7 shorter (5 shortest), c. x 1.7 as long and about twice as long as broad; club twice as wide as funicle and x 2.7-3.1 as long as broad, fusiform, widest at distal two-thirds of length. Prothorax x 1.05-1.17 as long as broad, barrelshaped (hence appearing distinctly longer than broad), widest in, or in front of, middle; disc of pronotum flattened (sometimes depressed), with irregular bead-like granules, usually prominent in female, smaller, sometimes indistinct, in male; setae mostly recumbent and inconspicuous. Elytra narrow in male, without any constriction in front of processes, broadly rounded in female, hence narrowing slightly at base of processes; processes short, stout, strongly tapering, strongly diverging and strongly rising, hind edge  $\pm$  swollen in male, always swollen in female and sometimes developed into a large, blunt, posteriorly-directed tubercle (Fig. 42); disc of elytra flattened or weakly depressed, surface fairly even; strial punctures small, each with a small associated granule; large dark erect setae near sides of most females and some males and tuft of long pale setae on apex of each elytral process. Legs as in A. fallax but more slender. Mesepisterna posteriorly with a few very small punctures and very small scales, otherwise these and arms of mesosternum entirely bare and smooth. Ventrites 1 and 2 and metasternum very finely rugose, with large shallow punctures containing pale subcrect setae, scales small and separate throughout; ventrite 5 with huge sharprimmed crater-like fovea in male, smaller fovea, with smoothly rounded edges, in female (sometimes obsolete). Sexual dimorphism moderate (see above); in addition, elytral apex entire in male (Fig. 15) but sharply emarginate in female (Fig. 17); emargination very small and obscure in some females (Fig. 16); elytral processes only slightly smaller in female (on average) (EPI 116-117 (0<sup>\*</sup>), 115-116 (9)).

Genitalia. Five males and 4 females dissected. Median lobe of acdeagus (Figs 11-13) x 2.1-2.4 as long as broad and x 0.49-0.57 as long as pronotum, with sharply defined depression in upper surface (somewhat as in *A. fallax* but open anteriorly); apodemes x 2.50-2.61 as long as median lobe; manubrium slightly shorter than median lobe; flagellum very fine, x 0.32-0.46 as long as pronotum; internal sac with two principal flexures (making it appear Z-shaped), inner surface with various transparent microtrichia and a double row of larger, pigmented denticles around the distal flexure or between the flexures. Spermatheca (Fig. 14) as in *A. fallax* (Thompson 1977, figs 113-115).

Bionomic data. 'On Rut[aceae]: Evodia sp.' (Bishop Museum specimen).

*Comments.* This species superficially resembles members of the *acutus* group but does not have their extraordinary secondary sexual characters or small eyes. It runs to couplet 34 in my key (Thompson 1977).

Range. Morobe District (Aseki). Altitude: c. 1700-c. 2000 m.



**Figs 40-46.** *Apirocalus (A.)* spp. (40-42) *A. reideli* (40 male; 41 female, 42 female with tubercles on elytral processes); (43-45) *A. perturbans* (43 holotype male, with elytral spines; 44 female without elytral spines; 45 female with elytral spines); (46) *A. specillifer*, holotype male.

## *Apirocalus (A.) perturbans* sp. n. (Figs 18-22, 43-45)

*Types.* Holotype O<sup>\*</sup>, PAPUA NEW GUINEA: Morobe District, Engabena, 1800 m, 28-30.xi.1974, Reni and Petrus (in BPBM). *Paratypes*: 2 99, same data as holotype (BPBM, BMNH). All three specimens have been dissected.

Description. Length 6.9-8.2 mm. Head and body black, antennae and legs dark or blackish red (coxae and tarsi black). Scales generally dense, grevish or coppery brown but (some) iridescent green or golden red on elytral processes and extensive bare areas on sides of prothorax and elytra; setae on tips of elytral processes creamy white, forming a dense fringe, elsewhere on body mostly pale or dark brown, whitish or hyaline on head and legs. Head with weak circumocular rugae (easily concealed by scales), densely squamose below eyes; rostrum  $\pm$  parallel-sided, weakly widening at genae; median rostral carina distinct, flanked by scale-covered rugae; genae bare; antennae as in A. fallax except funicle more slender, segment 2 x 2.9 as long as broad. Prothorax x 1.1 as long as broad, sides moderately and  $\pm$  evenly rounded, widest slightly in front of middle; disc of pronotum flattened, with very irregularly arranged cluster of c. 20 shiny granules, interspaces with deep punctures concealed by scales. Elytra ovate, disc slightly flattened, surface weakly rugose, with scattered shiny granules (all smaller than largest of those on pronotum) but without any elevations; elytral processes tapering, their spread exceeding maximum width of elytra proper (c. x 1.1 as wide), basal swelling absent but usually with elongate tapering spine projecting horizontally from interstria 3 slightly below level of process. Legs as in A. fallax. Mesothorax, at sides, bare and shiny, with fine scattered punctures, as in A. (Molobrium) gracilis group; metasternum flat on disc, surface finely rugose and irregularly punctate. Sexual dimorphism slight; venter of male very coarsely punctate, with an ill-defined median sulcus on ventrite 1 and anterior half of ventrite 2, ventrite 5 with huge median fovea with sharp, strongly raised edges; venter of female more finely and diffusely punctate, with no median sulcus and a small ill-defined foyea on ventrite 5; EPI 121  $(0^{\prime}), 118 (9).$ 

*Genitalia.* One male and 2 females dissected. Median lobe of aedeagus (Figs 18-20) x 2.1 as long as broad and x 0.53 as long as pronotum, edges of phallotreme sharply thickened, forming a U-shaped depression, as in *A. fallax*; apodemes x 2.9 as long as median lobe, manubrium equal to it in length, flagellum x 0.7 as long and x 0.4 as long as pronotum. Spermatheca (Figs 21, 22) very similar to that of *A. fallax* but both specimens examined have a transparent collar on the gland-lobe; spermathecal duct x 0.64 as long as pronotum.

*Comments.* The thickened edges of the phallotreme of the aedeagus and short elytral processes in both sexes show that this species belongs to the *fallax* group but its smooth prothorax and elytra give it a superficial resemblance to

members of the *avus* group. Disregarding the elytral spines, this species is rather similar to *A. riedeli*, with which it may be parapatric. It differs in having the pronotum less distinctly flattened, the elytral processes less strongly rising and the apical elytral emargination present in both sexes. The declivital elytral spines are unique to this species. They may, however, be homologous with the elytral tubercles of *A. riedeli* but these occur only in some females. The lack of spines in one of the two females of *A. perturbans* (Fig. 44) is puzzling, hence the name given to this species.

Range. Morobe District (Engabena). Altitude: 1800 m.

### avus group

Small brown species with capitate antennal funicles in both sexes and welldeveloped blade-like elytral processes in the male. The species have few strong differentiating characters, either externally or in their genitalia, apart from the length of the flagellum.

## Apirocalus (A.) avus avus Thompson

Material examined. PAPUA NEW GUINEA: 2 0'0', Eastern Highlands, 'bet[ween] Daulo Pass [and] Chuave', 16.v.1966, J.L. Gressitt; 1 9, Sinofi, 30 km S of Kainantu, 1590 m, 30.ix.1959, T.C. Maa; 1 9, Chimbu, Kundiava, 1400-1500 m, ix.1971, N.L.H. Krauss (all BPBM).

## Apirocalus (A.) avus intermedius Thompson

Material examined. PAPUA NEW GUINEA: 1 O', Western Highlands, Wapenamada, 5800 ft [1740 m], 14.ix.1969, P. Sawyer (BPBM).

## Apirocalus (A.) avus karimuicus Thompson

Material examined. PAPUA NEW GUINEA: 1 of, 1 9, Chimbu, Mt Karimui, 2300 m, 18-20.iv.1977, J.L. Gressitt (BPBM); 2 of of, ditto, except 2100-2300 m and 16-20.iv.1977 (BPBM, BMNH).

Bionomic data. 'Olearia' [Asteraceae] (handwritten, on first pair).

Comments. These specimens were taken 1000 m higher up Mt Karimui than the types. Their elytral processes are distinctly longer than those of the types (EPI 145-150 (O'), 128 (?)); indeed those of the female closely resemble those of the males of the lower population. Increase in length of elytral processes with higher altitude has been carefully documented in *A. ebrius* Faust and has been noted in *A. sedlaceki* Thompson and *A. cornutus virescens* Thompson (Thompson 1977). The present specimens also differ from the others in having green scales on the body and coppery scales on the legs, which are dark red.

## Apirocalus (A.) avus tarii subsp. n.

(Figs 26, 47, 48)

*Types. Holotype* o<sup>\*</sup>, PAPUA NEW GUINEA: Southern Highlands, between Tari and Koroba, Hake [5°45'S, 142°45'E], 1700-2000 m, 14.v.1998, A. Riedel (in ZS). *Paratypes*: 27 o<sup>\*</sup>o<sup>\*</sup>, 20 99, same data as holotype (37 AR, 10 BMNH).

Description. Resembles A. a. intermedius Thompson but is slightly larger, on average (6.2-6.8 mm), has a longer flagellum (x 2.25-2.38 as long as pronotum (mean (5) = 2.32)) which is coiled into a ring and the median lobe of the aedeagus has, in profile, a weak pre-apical constriction (Fig. 26). This subspecies occurs some 100 km west of the nearest locality of A. a. intermedius and its discovery extends the range of the avus group by that distance. Five males and one female were dissected.

Range. Southern Highlands (Tari). Altitude: c. 1800 m.

## Apirocalus (A.) sedlaceki laminifer subsp. n.

(Figs 49, 50)

*Types. Holotype* o<sup>\*</sup>, PAPUA NEW GUINEA: Morobe District, range between Aseki and Menyamya [7°18'S, 146°08'E], 2000-2200 m, 12.iv.1998, A. Riedel (in ZS). *Paratypes*: 72 o<sup>\*</sup>o<sup>\*</sup>, 51 99, same data as holotype (100 AR, 20 BMNH, 5 BPBM); 9 o<sup>\*</sup>o<sup>\*</sup>, 12 99, Aseki, Oiwa, 1600-1700 m, 11-12.iii.1998, A. Riedel; 3 o<sup>\*</sup>o<sup>\*</sup>, 5 99, ditto, except 22.ii.1998; 2 o<sup>\*</sup>o<sup>\*</sup>, 2 99, ditto, except 1700-1800 m and 10-11.iv.1998; 1 o<sup>\*</sup>, ditto, 1700 m and 9-14.iv.1998; 2 o<sup>\*</sup>o<sup>\*</sup>, 3 99, ditto, except Langama Road, 1600-1700 m and 22.ii.1998 (all AR); 6 o<sup>\*</sup>o<sup>\*</sup>, 1 9, Aseki, Hokanalwa, 1600-1900 m, 14.ii.1998; 2 o<sup>\*</sup>o<sup>\*</sup>, 2 99, Aiewa near Poiu, S [of] Aseki, 1500-1700 m, 14.iv.1998; 4 o<sup>\*</sup>o<sup>\*</sup>, 5 99, Aseki, 1200-1400 m, 14.iv.1998; 1 o<sup>\*</sup>, 2 99, Aseki, 1000-1300 m, 13.x.1992, all A. Riedel (all AR); 1 o<sup>\*</sup>, Aseki, 10.x.1971, L. Jay; 1 9, Aseki, 1200 m, 14.iv.1974, Josef Ku; 1 o<sup>\*</sup>, Aseki, 1200 m, 1.xii.1974, Reni (all BPBM); 1 9, Werr Valley, Menyamya, 6.ix.1961, L. Hastings (BMNH); 1 o<sup>\*</sup>, 2 99, Ekuti Range [between Aseki and Mt Amungwiwa], Gressitt *et al.*; 1 o<sup>\*</sup>, 1 9, Mt Amingwiwa [Amungwiwa], 1000-2300 m, 12-13.iv.1970, J.L. Gressitt (all BPBM).

Description. Differs from the nominate subspecies in its larger average size (length O': 6.7-8.3 mm (mean (20) = 7.48); 9: 7.2-8.7 mm (mean (20) = 8.11)), longer elytral processes (EPI 143-162 (O'), 118-138 (9)) and shorter flagellum (x 1.18-2.14 length of pronotum (mean (14) = 1.57)) which is curved but not coiled into a ring; sides of elytra strongly and evenly rounded so there is a distinct constriction in front of process bases in both sexes; elytral processes of male vary in width and are often parallel-sided; there is no trace of a pre-basal swelling in either sex. Disc of pronotum sometimes depressed in male and fairly evenly covered with bead-like granules; these, and the elytral strial granules, vary considerably in size in both sexes. Sixteen males and four females were dissected.

Bionomic data. 'Ficus' [Moraceae] (Reni specimen).

*Comments.* This subspecies is narrowly parapatric with the nominate subspecies along the upper Watut river, near Wau. Some specimens taken on either side of this river are somewhat intermediate in character and a careful study of the available material suggests that clines may exist in the length of the flagellum and in the lengths of the elytral processes across the ranges of the two subspecies, with a step in each at the Watut river. The two paratypes of *A. sedlaceki* from Aseki (Thompson 1977) clearly belong to the present



Figs 47-52. Apirocalus (A.) avus group. (47, 48) A. avus tarii, male, female; (49, 50) A. sedlaceki laminifer, male, female; (51, 52) A. carinirostris, male, female.

subspecies. The name ('blade-bearer') refers to the thin, elongate elytral processes of the male.

Range: Morobe District (SW). Altitude: c. 1200-2000 m.

## Apirocalus (A.) canus Thompson

Material examined. PAPUA NEW GUINEA: 2 O'O', 'Moroka/ Brit. N.G./ 3500 ft. [1050 m], x.[18]95/ Anthony'; 1 9, 'Mt. Alexander/ to Mt. Nisbet/ Brit. N.G., i.[18]96/ Anthony.' (all MNHN).

*Comments.* Moroka [Morokai] is 50 km E of Port Moresby at 9°25'S, 147°35'E (unpublished Bishop Museum list of New Guinea localities, 1966). Mt Nisbet is in the Owen Stanley Range at 9°12'S, 147°50'E (World Aeronautical Chart 3096) and Mt Alexander is 20 km W of Mt Nisbet at 9°14'S, 147°40'E (L.E. Cheesman, MS gazetteer). Both records extend the known range of *A. canus* in a southerly direction by up to 60 km. Three species have been recorded at Morokai, namely *A. canus*, *A. inornatus* Thompson and *A. cormutus* Pascoe.

## Apirocalus (A.) carinirostris sp. n.

## (Figs 23-25, 51, 52)

*Types. Holotype* O<sup>\*</sup>, PAPUA NEW GUINEA: Southern Highlands, Mt Bosavi, 2300 m, 9.v.1973, J.L. Gressitt *et al.* (in BPBM). *Paratypes*: 1 O<sup>\*</sup>, same data as holotype ('*et al.*' omitted) (BMNH); 1 9, ditto, except 7.v.1973; 1 9, ditto, except J.L. Gressitt and Gaya (both BPBM).

Description. Length 8.0-9.0 mm. Head and body black or reddish black, antennae reddish black, legs dark red (tarsi blackish). Scales on body subcircular, ± contiguous, pale grey or pearly with coppery (sometimes green) reflection, on legs mostly translucent and inconspicuous; setae mostly pale. Head as in A. sedlaceki, except median rostral carina prominent, broad, shiny and bare, widening apicad where it merges with nasal plate; antennal scape slender, distinctly sinuous, widening progressively from near base, apex distinctly capitate but without a sharp pre-apical constriction; setae on fore edge curved, semi-erect, all much shorter than greatest diameter of scape in middle of length; funicle stout, segments 1 and 2 subequal in length and x 2.0-2.3 as long as broad, segments 3-7 two-thirds as long and x 1.2-1.5 as long as broad. Prothorax slightly longer than broad (x 1.02-1.14 as long), sides moderately rounded, widest in front of middle (male) or about middle (female); disc of pronotum coarsely and irregularly sculptured, with variable number of discrete shiny granules which are irregularly disposed; sometimes with traces of a very narrow median carina. Elytra broadly ovate, somewhat flattened on disc, surface ± even but with a shiny granule associated with each strial puncture (these larger in female than in male); interstriae with a few minute setiferous granules; elytral processes large, stout and cone-shaped in both sexes, with mesal aspect extensively swollen, more elongate and more steeply rising in male, apex with short fringe of setae, whitish anteriorly, pale

brown posteriorly. Mesepisterna strongly punctate and setose but (apparently) scale-free; arms of mesosternum smooth and bare. Legs as in *A. sedlaceki* but more slender; femoral setae smaller and mostly recumbent. Venter with irregular transverse rugulae, coarsely or obscurely punctate and throughout with prominent semi-erect pale setae. Sexual dimorphism slight (see above); EPI 120, 121 ( $\sigma$ <sup>o</sup>), 112, 115 ( $\varphi$ ).

*Genitalia.* One male and 1 female dissected. Median lobe of aedeagus (Figs 23, 24) x 3.0 as long as broad and x 0.59 as long as pronotum; flagellum coiled into a ring, as in *A. sedlaceki* but shorter, x 2.06 as long as pronotum. Spermatheca (Fig. 25) with duct x 1.32 as long as pronotum.

*Comments.* The genitalia show that this species belongs to the *avus* group, of which it may prove to be the largest member. The prominent rostral carina, from which it takes its name, occurs also in some *A. suppuratus* Thompson and in some *A. fordi* sp. n. but in these species it is either less well defined or is divided by a fine longitudinal groove. The prominent elytral strial granules resemble those of *A. canus.* In my key (Thompson 1977) the male runs to *A. atrigenua*, except that the knees are not black; the female runs to *A. canus* but in that species the median rostral carina is indistinct. The type locality extends the range of the *avus* group about 160 km in a southwesterly direction and across the Kikori river.

Range. Southern Highlands (Mt Bosavi). Altitiude: 2300 m.

### hydrographicus group

Medium-sized species, occurring in eastern Papua. Elytra  $\pm$  globose, with pale lateral stripe in males; rostrum with edges of pterygia milled in both sexes and females without long erect setae on postero-ventral margin of prothorax (*cf. cornutus* group); median lobe of aedeagus widening around phallotreme and with blunt apex (Thompson 1977, figs 154, 156, 158, 159).

## Apirocalus (A.) inornatus Thompson

Material examined. PAPUA NEW GUINEA: 1 of, 1 9, Central District, 'Morokai/ Brit. N. Guin.' (printed) (MNHN).

*Comments.* These specimens may be from the same series as the types, which are both female. The male confirms that, as in *A. vexillarius* Marshall, sexual dimorphism in this species is slight. The female, at 9.8 mm, is significantly larger than the types (8.0 and 8.8 mm).

### cornutus group

This group includes the common lowland 'grey weevils' in which the antennal scape is flattened and non-capitate; sexual dimorphism is strong: all males have blade-like elytral processes and the rims of the rostral pterygia are milled; most females have blunt elytral angulations and smooth pterygia; they also have a fringe of large erect setae on the postero-ventral margin of the prothorax (Thompson 1977, fig. 243). In two cases (*A. cornutus paradoxus* 

Thompson and A. c. bosavii subsp. n.) the females resemble males except that the elytral processes are curved and tapering.

#### Apirocalus (A.) cornutus cornutus Pascoe

Material examined. PAPUA NEW GUINEA: 32 0'0', 23 99, Papua, Gulf District, Lakekamu Basin, Tekadu, 200-400 m, 28.ii-1.iii.1998, A. Riedel (53 AR, 2 BMNH); 1 9, Tekado-Kakaro, Ivimka River Station, 150 m, 4.iii.1998, A. Riedel (AR).

Comments. The Lakekamu river is about 60 km east of Kerema.

#### Apirocalus (A.) cornutus virescens Thompson

## (Figs 54, 55)

*Material examined.* PAPUA NEW GUINEA: 2 o'o', 2 99, Morobe District, Watut-Aseki, Engabena, 1700 m, 14.iv.1974, J.L. Gressitt (BPBM); 1 o', Southern Highlands, Orakena [20 km SE of Lake Kitubu], 26.vii.1974, N. Howcroft (BMNH).

*Bionomic data. 'Trema* [Ulmaceae] foliage' (Howcroft's specimen; this specimen was determined as *A. paradoxus* by M.L. Cox in 1985).

*Correction.* The paratype from Koibuga (near Mt Hagen) has been reidentified as *A. c. paradoxus.* The specimen is very teneral and both elytral processes were folded over while it was soft; their fringes appear somewhat darkened posteriorly (as in *A. c. virescens*) but the aedeagus agrees unequivocally with that of *A. c. paradoxus.* 

## Apirocalus (A.) cornutus paradoxus Thompson, stat. n.

(Figs 58, 59)

Apirocalus paradoxus Thompson, 1977: 239.

Material examined. PAPUA NEW GUINEA: 1 of, Western Highlands, Koibuga, 1500 m, 3.vii.1963, H. Clissold (BPBM). This specimen is a paratype of A. c. virescens (see above).

*Comments.* The discovery of *A. c. bosavii* subsp. n. (see below), which is intermediate between *A. c. cornutus* and *A. c. paradoxus*, makes the maintainance of the latter as a distinct species untenable, notwithstanding its more elongate aedeagus and uniformly pale elytral process fringing setae.

## Apirocalus (A.) cornutus bosavii subsp. n.

(Figs 56, 57)

*Types. Holotype* 9, PAPUA NEW GUINEA: Southern Highlands, Mt Bosavi, 900 m, 11.v.1975, J.L. Gressitt, '6358' (in BPBM). *Paratypes*: 1 o<sup> $\tau$ </sup>, same data as holotype; 1 o<sup> $\tau$ </sup>, 3 99, ditto, except 800-900 m and Gaya; 1 9, ditto, except 700 m and 12.v.1973; 1 o<sup> $\tau$ </sup>, 1 9, ditto, except 5.v.1973 and Gaya; 1 o<sup> $\tau$ </sup>, ditto, except 5.v.1973 and '6352' (8 BPBM, 2 BMNH); 2 o<sup> $\tau$ </sup>o<sup> $\tau$ </sup>, 2 99, 'Bosavi', xi.1973, H. Ohlmus; 4 o<sup> $\tau$ </sup>o<sup> $\tau$ </sup>, ditto, except vii.1975; 1 o<sup> $\tau$ </sup>, ditto, except vii.1975; 1 o<sup> $\tau$ </sup>, ditto, except vii.1975; 1 o<sup> $\tau$ </sup>, 1 9, ditto, except vii.1975 (8 BPBM, 3 BMNH).

Description. Length 8.4-10.0 mm. Differs from the nominate subspecies as follows: scales on body smaller, greyish green, not imbricate, those on legs



Figs 53-59. Apirocalus (A.) cornutus group. (53) A. grossus, holotype male; (54, 55) A. c. virescens, male, female; (56, 57) A. c. bosavii, male, female; (58, 59) A. c. paradoxus, male, female.

mostly smaller still, mostly iridescent blue-green and separate but large, pale and imbricate on swollen part of hind femur dorsally; metasternum and venter with minute thinly-scattered metallic scales; female with setae on postero-ventral edge of prothorax smaller or absent, those on mesepisternum larger, widening progressively from base to sharply truncate apex; rims of pterygia milled in both sexes (as in *A. c. paradoxus*); antennae as in *A. c. virescens*; elytral processes of male more elongate, on average (EPI 132-140), those of female elongate and curved, as in *A. c. paradoxus*; median lobe of aedeagus slightly more elongate, x 2.54-2.60 as long as broad and x 0.62-0.68 as long as pronotum; internal sac with pigmented denticles in proximal section (as in *A. c. paradoxus*). Differs from *A. c. paradoxus* as follows: elytral processes of male with setae of terminal fringe dark posteriorly (as in *A. c. cornutus*), processes of female blunt and less elongate: EPI 126-141 (mean (9) = 137), *paradoxus* 143-153 (mean (8) = 147); median lobe of aedeagus distinctly less elongate (*paradoxus* x 3.7-4.2 as long as broad).

*Comments.* This subspecies is intermediate, morphologically, between *A. c. virescens* and *A. c. paradoxus*; the male has the short median lobe of the former while the female has the extraordinary elytral processes of the latter and, like it, exhibits male secondary sexual characters (Thompson 1977); in fact, the male can only be distinguished from that of *A. c. virescens* by the presence of pigmented denticles in the proximal (posterior) section of the internal sac.

Range. Southern Highlands (Mt Bosavi). Altitude: 700-900 m.

#### Apirocalus (A.) mus Thompson

Additional published record. PAPUA NEW GUINEA: Morobe Province, Gusap airstrip, iv.1976, on Acacia (Greve and Ismay 1983).

### Apirocalus (A.) ebrius ebrius Faust

*Material examined.* PAPUA NEW GUINEA: 2 of of, Papua, Milne Bay, Waiwara, 10.x.1969, E. E. Ball (C.W. O'Brien coll.). INDONESIA (WEST PAPUA): 1 of, Jayawijaya Province, Membaham, 1500-1800 m, 23.ix.1991, A. Riedel; 1 of, ditto, except Membaham-Helargi, Wamena, 17.ix.1991; 1 of, ditto, except Angguruk-Membaham, 22-26.ix.1991; 1 of, Cyclops Mts, 4 km N of Sentani, 600 m, 8-13.ix.1990, Balke and Hendrich; 1 of, Sentani, c. 300 m, 19-21.ix.1990, A. Riedel (all AR).

*Comments.* The record for Waiwara extends the mainland range of *A. ebrius* by over 200 km to the east; this species probably occurs throughout the eastern extremity of mainland Papua.

## Apirocalus (A.) ebrius wagneri Thompson

*Material examined.* PAPUA NEW GUINEA: 2 of of, 3 99, Huon Peninsula, W of Pindiu, 1000-1400 m, 23.iv.1998; 1 of, 2 99, Mindik, 1200-1500 m, 26.iv.1998; 1 of, Mindik, 1400-1500 m, 27.iv.1998; 2 of of, Saruwaged Mts, Boana, 1000-1500 m, 21-22.x.1992, all A. Riedel (all AR).

*Comments.* These records extend the range of this subspecies by about 30 km to the south-east.

# Apirocalus (A.) grossus sp. n.

(Figs 28, 29, 53)

*Type. Holotype*  $\sigma'$ , PAPUA NEW GUINEA: Morobe District, range between Aseki and Menyamya [7°18'S, 146°08'E], 2000-2200 m, 12.iv.1998, A. Riedel (in ZS). Riedel has skillfully dissected the specimen without removing the venter.

Description. Male. Length 11.0 mm. Black, except antennae reddish black and femora dark red (knees blackish). Head as in A. cornutus except frons level with rostrum in profile and evenly convex transversely between eyes; rostro-frontal furrow narrower; upper surface of rostrum with an irregular carinula between median carina and side; scales small, mostly brown, contiguous or separate, setae mostly pale; antennae with scape flattened but very slender and almost as long as pronotum (x 0.8 as long in A. cornutus), covered with small subcircular weakly iridescent scales and small pale curved setae (about as in A. cornutus); funicle segments scale-free but with recumbent silky hairs, all of similar width, segment 1 strongly clavate, x 2.43 as long as broad, 2 weakly clavate, x 1.18 as long as 1 and x 2.86 as long as broad, 3 as long as 1 and x 2.14 as long as broad, 4-7 subequal, x 0.7 as long as 1 and x 1.7 as long as broad; club fusiform, as long as 3 preceding funicle segments, x 2.92 as long as broad, segments 1 and 2 subequal. Prothorax resembling that of A. cornutus in shape; pronotum covered with dense, somewhat irregular, sometimes coalescing shiny bead-like granules, interspaces with very small iridescent pearly scales, setae very fine, very small and inconspicuous; sides with obsolete granules and much larger brown scales; anterior border of prosternum with large erect pale setae. Elytra somewhat as in A. cornutus but processes proportionately larger, flatter and broader, with longer and anteriorly more extensive seta-fringes, fringing setae almost uniformly pale brown (dark posteriorly in A. cornutus); EPI 142; strial punctures on disc obscured by scales, strial granules prominent, much larger than surrounding scales, interstrial granules scale-sized, numerous only in basal third; scales generally large, imbricate, orange-brown becoming even larger but paler and less dense on processes, those on declivity strongly imbricate, pale creamy brown: setae minute and inconspicuous. Mesepisterna, arms of mesosternum and vertical sides of metasternum with separate or contiguous orange-brown scales, about half as large as those on disc of elytra. Legs as in A. cornutus, except scales much smaller and mostly separate; all tarsal segments with recumbent silky hairs but no scales. Ventrites 1 and 2 and disc of metasternum broadly and evenly depressed, with some weak, irregular transverse rugae, surface throughout microreticulate; scales very small, mostly separate (even towards sides), round or ovate, pale blue-grey with strong pearly reflection; setae small, fine, pale, semi-erect or subrecumbent; ventrites 3-5 scale-free, with minute pale sub-erect setae; surface of 5 uneven, with obsolete pre-apical fovea. Sexual dimorphism unknown but likely to be well marked, as in *A. cornutus*.

*Genitalia*. Median lobe of aedeagus (Figs 28, 29) x 3.1 as long as broad and x 0.47 as long as pronotum; apodemes x 2.5 as long as median lobe; flagellum x 4.4 as long as median lobe and x 2.07 as long as pronotum.

*Comments.* This species most closely resembles *A. hornabrooki* Thompson from Karkar I. but is at once distinguished from it by its strongly and densely granulate pronotum. The elytral processes diverge more strongly than in that species; in fact their spread is equal to the distance from their tips to the scutellum, as in some *A. cornutus virescens. A. grossus* runs to couplet 49 in my key (Thompson 1977) and is one of the largest species of *Apirocalus* (hence the name); the others are *A. hornabrooki* and *A. ater* Thompson, both of which occur on off-shore islands. *A. grossus* was taken with *A. sedlaceki laminifer* subsp. n. and *A. specillifer* sp. n.

Range. Morobe District (SW). Altitude: c. 2000m.

#### acutus group

Elongate species with small, sharply angulate elytral processes in the male (reduced in female) and a strongly capitate antennal scape (in both sexes); median lobe of aedeagus elongate, apex acuminate.

# Apirocalus (A.) specillifer sp. n.

## (Figs 30-32, 46)

*Types. Holotype* O<sup>\*</sup>, PAPUA NEW GUINEA: Morobe District, range between Aseki and Menyamya [7°15'S, 146°08'E], 2000-2200 m, 12.iv.1998, A. Reidel (in ZS). *Paratype* O<sup>\*</sup>, same data as holotype (BMNH). Both specimens have been dissected.

Description. Male. Length 7.4-7.5 mm. Head, body and tarsi black; antennae and legs (except tarsi) reddish black. Scales on body dense, orange-brown or green, dull or metallic; on femora, tibiae and antennal scape smaller, absent from antennal funicle and tarsi; setae mostly fine and pale or hyaline, minute on dorsum. Head with eyes small and very strongly convex, bun-shaped, longest diameter scarcely equal to half distance between them; antennae with funicle segment 1 slightly shorter than 2, 3-7 subequal (7 longest) and x 0.6-0.7 as long as 2; club x 2.54-2.75 as long as broad and about as long as four preceding funicle segments; setae on leading edge of scape very fine, suberect, mostly pale. Prothorax slightly (x 1.1) longer than broad (but appearing distinctly longer), disc of pronotum flattened, surface throughout finely granulo-rugose. Elytra as in A. acutus but processes slightly more divergent; EPI 123, 134 (acutus 140, 142). Mesepisternum smooth and polished anteriorly but with a cluster of punctures and small scales posteriorly; arms of mesosternum with or without a few small scales. Venter as in A. acutus. Sexual dimorphism unknown but, by analogy with A. acutus, it is likely that the elytral processes of the female are reduced to oblique ridges.

*Genitalia*. Two males dissected. Median lobe of aedeagus (Figs 30-32) elongate, strongly curved, x 3.5-3.7 as long as broad and x 0.8 as long as pronotum, apex strongly attenuated; apodemes x 1.4-1.5 as long as median lobe; flagellum x 0.47-0.55 as long as pronotum; internal sac with irregular row of large sharp pigmented denticles in basal three-fourths of length.

*Comments. A. specillifer* is the second species of the *acutus* group; it closely resembles *A. acutus* in general appearance but is smaller and the male has normal fore femora (not arched in basal half). The attenuation of the aedeagal apex is very distinctive and suggested the name ('probe-bearer'). In spite of this, the antennae of the two available specimens are disconcertingly different: in the holotype, the scape is much stouter, the funicle segments swollen and the basal segment of the club widens abruptly at the base (evenly and progressively widening in the paratype).

Range. Morobe District (SW). Altitude: c. 2000 m.

## Genus Albertisius Thompson

Type species Apirocalus gestroi Pascoe.

Albertisius excellens (Faust) (see Thompson 1977)

Material examined. PAPUA NEW GUINEA: 1 9, Papua, Mt Obree, 1890, von Mueller (MNHN).

*Comments.* Mt Obree is in the Owen Stanley Range about 100 km east of Port Moresby, where this species has hitherto been found.

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